

**WHAT IS CLAIMED IS:**

1. A method in a data processing system having a program, the method comprising the steps performed by the program of:

generating a dataset having at least one exposure level to failure of a computer-based system and a corresponding rule identifier of a rule used to calculate the exposure level, the rule asynchronously receiving information about the computer-based system and calculating the exposure level based on the received information;

comparing the generated dataset to a previously generated dataset by comparing the at least one exposure level of the dataset to an at least one exposure level with the same rule identifier in the previously generated dataset, the previously generated dataset being associated with a known problem with the computer-based system; and

calculating a probability of a problem with the computer-based system based on a number of exposure levels in the generated dataset matching exposures levels in the previously generated dataset.

2. The method according to claim 1, further comprising the step of outputting the calculated probability of a problem.

3. The method according to claim 2, wherein the output includes a description of the problem.

4. The method according to claim 1, wherein the exposure level comprises the exposure level multiplied by a confidence level of the exposure level, the confidence level having a value that is increased each time the corresponding rule calculates the exposure level.

5. The method according to claim 1, wherein the computer-based system is at least one of a data processing system, a component of a data processing system, and a computer program.

6. The method according to claim 1, wherein information about the computer-based system is received by subscribing to the information.

7. The method according to claim 1, wherein the received information comprises at least one of fault information, hardware configuration information, and software configuration information about the computer-based system.

5 8. A computer-readable medium containing instructions that cause a data processing system having a program to perform a method comprising the steps performed by the program of:

generating a dataset having at least one exposure level to failure of a computer-based system and a corresponding rule identifier of a rule used to calculate the exposure level, the  
10 rule asynchronously receiving information about the computer-based system and calculating the exposure level based on the received information;

comparing the generated dataset to a previously generated dataset by comparing the at least one exposure level of the dataset to an at least one exposure level with the same rule identifier in the previously generated dataset, the previously generated dataset being  
15 associated with a known problem with the computer-based system; and

calculating a probability of a problem with the computer-based system based on a number of exposure levels in the generated dataset matching exposures levels in the previously generated dataset.

20 9. The computer-readable medium according to claim 8, further comprising the step of outputting the calculated probability of a problem.

10. The computer-readable medium according to claim 9, wherein the output includes a description of the problem.

25 11. The computer-readable medium according to claim 8, wherein the exposure level comprises the exposure level multiplied by a confidence level of the exposure level, the confidence level having a value that is increased each time the corresponding rule calculates the exposure level.

30 12. The computer-readable medium according to claim 8, wherein the computer-based system is at least one of a data processing system, a component of a data processing system, and a computer program.

13. The computer-readable medium according to claim 8, wherein information about the computer-based system is received by subscribing to the information.

14. The computer-readable medium according to claim 8, wherein the received information comprises at least one of fault information, hardware configuration information, and software configuration information about the computer-based system.

15. A data processing system comprising:

a memory having a program that

generates a dataset having at least one exposure level to failure of a computer-based system and a corresponding rule identifier of a rule used to calculate the exposure level, the rule asynchronously receiving information about the computer-based system and calculating the exposure level based on the received information,

compares the generated dataset to a previously generated dataset by comparing the at least one exposure level of the dataset to an at least one exposure level with the same rule identifier in the previously generated dataset, the previously generated dataset being associated with a known problem with the computer-based system, and

calculates a probability of a problem with the computer-based system based on a number of exposure levels in the generated dataset matching exposures levels in the previously generated dataset; and

a processing unit that runs the program.

16. The data processing system according to claim 15, wherein the program further outputs the calculated probability of a problem.

17. The data processing system according to claim 16, wherein the output includes a description of the problem.

18. The data processing system according to claim 15, wherein the exposure level comprises the exposure level multiplied by a confidence level of the exposure level, the confidence level having a value that is increased each time the corresponding rule calculates the exposure level.

19. The data processing system according to claim 15, wherein the computer-based system is at least one of a data processing system, a component of a data processing system, and a computer program.

5           20. The data processing system according to claim 15, wherein information about the computer-based system is received by subscribing to the information.

10           21. The data processing system according to claim 15, wherein the received information comprises at least one of fault information, hardware configuration information, and software configuration information about the computer-based system.

22. A data processing system comprising:

15           means for generating a dataset having at least one exposure level to failure of a computer-based system and a corresponding rule identifier of a rule used to calculate the exposure level, the rule asynchronously receiving information about the computer-based system and calculating the exposure level based on the received information;

20           means for comparing the generated dataset to a previously generated dataset by comparing the at least one exposure level of the dataset to an at least one exposure level with the same rule identifier in the previously generated dataset, the previously generated dataset being associated with a known problem with the computer-based system; and

          means for calculating a probability of a problem with the computer-based system based on a number of exposure levels in the generated dataset matching exposures levels in the previously generated dataset.